--14. The microarray device of claim 13 wherein the affinity anchor molecule is an oligonucleotide.--

--15. The microarray device of claim 13 wherein the electrode array comprises a plurality of electrode cells at a density of at least 100 electrodes per cm^2.--

--16. The microarray device of claim 13 wherein the electrode array comprises a plurality of electrode cells at a density of at least 1000 electrodes per cm^2.--

--17. A process for producing an array of molecules of interest localized to known locations, comprising:

(a) electrochemically synthesizing a plurality of different affinity anchor molecules at known locations within a porous matrix on a microarray device, wherein the affinity anchor molecule is selected from the group consisting of oligonucleotides, peptides and mixed oligo-peptides;

(b) providing a plurality of molecules of interest, wherein each molecule of interest comprises a moiety that binds to a specific or complementary affinity anchor molecule and a binding entity selected from the group consisting of oligonucleotides, peptides, antibodies, and combinations thereof;

(c) contacting the plurality of molecules of interest with the microarray device, whereby the molecules of interest localize to known locations by binding the affinity anchor molecule to the complementary moiety of the molecule of interest; and

(d) washing the microarray device to remove unbound molecules of interest.--

--18. The process of claim 17 wherein the affinity anchor molecule is an oligonucleotide.--

--19. The process of claim 17 wherein the electrode array comprises a plurality of electrode cells at a density of at least 100 electrodes per cm^2.--

--20. The process of claim 17 wherein the electrode array comprises a plurality of electrode cells at a density of at least 1000 electrodes per cm^2.--

REMARKS

Applicant respectfully requests reconsideration of the above-identified patent application in view of the foregoing amendment and following remarks. Applicant has amended the entire set of claims of the patent application by canceling claims 1-12 and inserting a new set of claims, claims 13-20. Claims 13-20 are supported in the specification. Specifically, claims 13 and 17 element (a) is supported on page 6 lines 10-26 and page 8 line 25 to page 11 line 12 for electrode array and porous matrix; page 14 lines 10-13 and page 15 lines 16-28 and page 19 lines 29-35 for affinity anchor molecule of claims 13 and 17 element (a), claims 14 and 18, and for "moiety that binds to a specific or complementary affinity anchor molecule" of claims 13 and 17 element (b).

Claims 13 and 17 element (b) "molecules of interest" is support by original claims 2 and 10. Claim 17 elements (c) and (d) are supported by elements (c) and (d), respectively of original claim 1. Similarly, claims 15, 16, 19 and 20 are supported by original claims 6 and 7. No new matter has been added. Entry of the foregoing amendment is respectfully requested. Claims 13-20 are pending.

35 U.S.C. §112 Second Paragraph Rejection

Claims 1-12 were rejected under 35 U.S.C. §112 second paragraph in view of several terms where there was no expressed definition section in the specification. Of the terms listed, only "molecules of interest" and "array" or rather "microarray" remains in claims 13-20 provided herein. Applicant traverses this rejection because the terms are either described in the specification so as to ascertain their metes and bounds or (array and microarray) are terms commonly used in the art and applicant accepts their art-accepted meaning.

With regard to "molecules of interest", applicant has revised the claims to provide a Markush group, supported in the specification, to define the metes and bounds of this term. Therefore, this term is a definite term.

With regard to array or microarray, this term is commonly used in the art to describe a plurality of different molecules (usually oligonucleotides) spotted or synthesized *in situ* onto a device. The references cited by the Examiner in the following rejections provide examples of microarrays. Therefore, this term has been described in the art.

Accordingly, the foregoing amendment obviates this 35 U.S.C. §112 second paragraph rejection.

35 U.S.C. §112 First Paragraph Rejection

Claims 1-12 were rejected under 35 U.S.C. §112 first paragraph as not providing a written description of the invention of claim 1. The Examiner could not determine the "inventive concept" from the specification. Moreover, the Examiner interpreted claim 1 to read on "conventional competitive immunoassay, an indirect ELISA and a standard sandwich ELISA." Applicant respectfully submits that the foregoing amendment obviates this rejection.

While applicant does not wish to try to argue whether of not claim 1 (as originally presented) does or does not read on basic ELISA-type immunoassays, that was certainly not the intention of the original drafter of this patent application. Applicant is presenting claims 13-20 to that the "inventive concept" can be better presented and to avoid any debate whether a claim is drafted in such a way as to read on old techniques. Therefore, applicant submits that the foregoing amendment obviates this rejection.

35 U.S.C. §102/103 Rejections

Claims 1-4 and 8-11 were rejected under 35 U.S.C. §102 as anticipated by or under 35 U.S.C. §103 as unpatentable over each of Faix or Voller et al. The Examiner contends that each reference discloses an ELISA assay with an immobilization of an antibody on a microtiter plate. The Examiner further contends that an antibody can be an affinity anchor. Applicant submits that the foregoing amendment obviates this rejection.

While the Examiner has construed claim 1 to cover an ELISA assay, a large body of prior art would anticipate such a claim. Rather than argue what claim 1 (as originally presented) should be considered to cover or not cover, applicant has provided claims 13-20 to obviate this issue. The present claims do **not** cover a standard ELISA assay with an immobilized antibody. In addition, the present invention provides that the microarray device comprises "a plurality of electrode cells" and the notion of an electrode-based microarray is not disclosed or suggested in the two references. Moreover, the Examiner recognized that an electrode microarray device falls outside such a teaching because original claims 6 and 7 were not included in this rejection. Accordingly, subject matter from claims 6 and 7 that was not included in this rejection (*i.e.*, electrode microarray device) is required in the two current independent claims (claims 13 and 17). Therefore, the present invention of claims 13-20 is not anticipated by Faix or Voller et al. and is patentable over Faix or Voller et al.

Claims 1-12 were rejected under 35 U.S.C. §102(b)/(e) as anticipated by or under 35 U.S.C. §103 as unpatentable over each of Montgomery, Ackley et al., Heller et al., Ribi et al. or Hafeman et al. The Examiner characterized each reference as "a method of attaching members of a specific binding pair to an 'array' of electrodes to produce a product in instant claims 7 and 12." Applicant respectfully disagrees with this characterization of the references and submits that the foregoing amendment obviates this rejection.

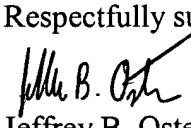
The references each describe an electrode array. Only Montgomery further describes in situ electrochemical synthesis of an oligomer (essentially an oligonucleotide or polypeptide) using the electrode to generate electrochemical reagents. The process of Montgomery is incorporated by reference in the present specification (where it was listed by a patent application number). However, the claimed invention of claims 13-20 utilizes the Montgomery process to initially provide an array of affinity anchor molecules. However, the claimed invention does not stop there. Instead, the claimed invention utilizes the electrode-containing array of affinity anchor molecules to then self-assemble a plurality of molecules of interest by specific binding to the affinity anchor molecules. None of the cited references disclose or suggest this use for a microarray device. Accordingly, the invention of claims 13-20 is patentable over each of the cited references.

Information Disclosure Statement

Applicant is submitting an information disclosure statement providing additional relevant references to the claimed invention in addition to the ones already cited by the Examiner.

In view of the foregoing response, applicant respectfully requests withdrawal of the pending rejections, consideration of the submitted Information Disclosure Statement, and allowance of pending claims 13-20.

Respectfully submitted,



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Clean copy of pending claims:

13. A microarray device comprising:

(a) an electrode array device comprising a plurality of electrode cells, a porous matrix, and a plurality of affinity anchor molecules, wherein the affinity anchor molecule is selected from the group consisting of oligonucleotides, peptides and mixed oligo-peptides; and

(b) a plurality of molecules of interest, wherein each molecule of interest comprises a moiety that binds to a specific or complementary affinity anchor molecule and a binding entity selected from the group consisting of oligonucleotides, peptides, antibodies, and combinations thereof.

14. The microarray device of claim 13 wherein the affinity anchor molecule is an oligonucleotide.

15. The microarray device of claim 13 wherein the electrode array comprises a plurality of electrode cells at a density of at least 100 electrodes per cm^2.

16. The microarray device of claim 13 wherein the electrode array comprises a plurality of electrode cells at a density of at least 1000 electrodes per cm^2.

17. A process for producing an array of molecules of interest localized to known locations, comprising:

(a) electrochemically synthesizing a plurality of different affinity anchor molecules at known locations within a porous matrix on a microarray device, wherein the affinity anchor molecule is selected from the group consisting of oligonucleotides, peptides and mixed oligo-peptides;

(b) providing a plurality of molecules of interest, wherein each molecule of interest comprises a moiety that binds to a specific or complementary affinity anchor molecule and a binding entity selected from the group consisting of oligonucleotides, peptides, antibodies, and combinations thereof;

(c) contacting the plurality of molecules of interest with the microarray device, whereby the molecules of interest localize to known locations by binding the affinity anchor molecule to the complementary moiety of the molecule of interest; and

(d) washing the microarray device to remove unbound molecules of interest.

18. The process of claim 17 wherein the affinity anchor molecule is an oligonucleotide.

19. The process of claim 17 wherein the electrode array comprises a plurality of electrode cells at a density of at least 100 electrodes per cm^2.

20. The process of claim 17 wherein the electrode array comprises a plurality of electrode cells at a density of at least 1000 electrodes per cm^2.